

CLAIM AMENDMENTS

1-36. (canceled)

37. (currently amended): A method to screen for a modulator of the expression of a gene in a non-human mammalian laboratory animal, which method comprises:

a) administering a test substance to said animal which expresses a green or blue fluorescent protein in an internal organ under the direction of a promoter of an endogenous gene, and determining the expression of said promoter via observing the presence, absence or intensity of the fluorescence generated by said fluorophore at various locations in said animal by whole-body external fluorescent optical imaging while said animal is mobile and not restrained;

b) determining the expression of said endogenous promoter, via observing the presence, absence or intensity of the fluorescence generated by said fluorophore at various locations by whole-body external fluorescent optical imaging, in a control laboratory animal while said animal is mobile and not restrained which expresses said green or blue fluorescent protein under the direction of said promoter of said gene; and

c) comparing the expression of said promoter determined in steps a) and b), wherein the expression determined in step a) is different from that in step b) when said test substance modulates said gene expression;

wherein said green or blue fluorescent protein is autofluorescent.

38. (canceled)

39. (currently amended): A method to screen for gene expression at an altered level, which method comprises:

a) administering a mutation-inducing agent or treatment to a non-human mammalian laboratory animal that expresses a green or blue fluorescent protein in an internal organ under the direction of a promoter of an endogenous gene wherein the mutation-inducing agent or treatment causes a mutation in germ-line cells of the laboratory animal so that the mutation is stably-transferable to progeny of the laboratory animal,

b) determining the expression controlled by said promoter via observing the presence, absence or intensity of the fluorescence generated by said green or blue fluorescent protein at various locations in a progeny animal by whole-body external fluorescent optical imaging while said progeny animal is mobile and not restrained;

c) determining the expression controlled by said endogenous promoter, via observing the presence, absence or intensity of the fluorescence generated by said green or blue fluorescent protein at various locations by whole-body external fluorescent optical imaging, in an untreated control laboratory animal while said animal is mobile and not restrained and which expresses said green or blue fluorescent protein under the direction of said promoter of said gene; and

d) comparing the expression controlled by said promoter determined in steps b) and c), wherein the expression determined in step b) is different from that in step c) when said progeny animal expresses said gene at said altered level;

wherein said green or blue fluorescent protein is autofluorescent.

40. (canceled)